In the claims:

Please amend the claims as follows:

Claims 1-22. **Cancelled**

23. **(Currently amended)** A transgenic non-human animal having a transgene integrated into the genome of the non-human animal and also having a *tet* operator-linked gene in the genome of the non-human animal ~~organism~~, wherein:

the transgene comprises a transcriptional regulatory element functional in cells of the non-human animal operatively linked to a polynucleotide sequence encoding a fusion protein which activates transcription of said *tet* operator linked gene,

the fusion protein comprises a first polypeptide which is a Tet repressor operatively linked to a second polypeptide which directly or indirectly activates transcription in eukaryotic cells,

said *tet* operator-linked gene confers a detectable and functional phenotype on the non-human animal when expressed in cells of the non-human animal,

said transgene is expressed in cells of the non-human animal at a level sufficient to produce amounts of said fusion protein that are sufficient to activate transcription of the *tet* operator-linked gene; and

in the absence of tetracycline or a tetracycline analogue in the non-human animal, said fusion protein binds to the *tet* operator-linked gene and activates transcription of the *tet* operator linked gene such that the *tet* operator-linked gene is expressed at a level sufficient to confer the detectable and functional phenotype on the non-human ~~organism~~, wherein the level of expression of the *tet* operator-linked gene can be downmodulated by administering tetracycline or a tetracycline analogue to the non-human animal.

24. **(Previously presented)** A transgenic non-human animal having a transgene integrated into the genome of the non-human animal, wherein:

the transgene comprises a transcriptional regulatory element functional in cells of the non-human animal operatively linked to a polynucleotide sequence encoding a fusion protein which activates transcription of a *tet* operator linked gene,

the fusion protein comprising a first polypeptide which is a Tet repressor, operatively linked to a second polypeptide which directly or indirectly activates transcription in eukaryotic cells, and

said fusion protein is expressed in cells of the non-human animal.

25. **(Previously presented)** The non-human animal of claim 23, wherein the second polypeptide of the fusion protein comprises a transcription activation domain of herpes simplex virion protein 16.

26. **(Previously presented)** The non-human animal of claim 24, wherein the second polypeptide of the fusion protein comprises a transcription activation domain of herpes simplex virion protein 16.

27. **(Previously presented)** The non-human animal of claim 23, wherein the transgene is integrated at a predetermined location in the genome of the non-human animal.

28. **(Previously presented)** The non-human animal of claim 24, wherein the transgene is integrated at a predetermined location in the genome of the non-human animal.

29. **(Previously presented)** The non-human animal of claim 27, wherein the transgene is integrated at a predetermined location such that expression of the fusion protein is controlled by 5' regulatory elements of an endogenous gene of the non-human animal and expression of the endogenous gene is controlled by at least one *tet* operator sequence.

30. **(Previously presented)** The non-human animal of claim 28, wherein the transgene is integrated at a predetermined location such that expression of the fusion protein is controlled by 5' regulatory elements of an endogenous gene of the organism and expression of the endogenous gene is controlled by at least one *tet* operator sequence.

31. **(Previously presented)** The non-human animal of claim 23, wherein the *tet* operator-linked gene is a second transgene comprising a gene of interest operably linked to at least one *tet* operator sequence.

32. **(Previously presented)** The non-human animal of claim 24, wherein the *tet* operator-linked gene is an endogenous gene that has been operatively linked to at least one *tet* operator sequence.

33. **(Currently amended)** The non-human animal of claim 23, which is selected from the group consisting of: a mouse, a cow, a sheep, a goat, and a pig.

34. **(Currently amended)** The non-human animal of claim 24, which is selected from the group consisting of: a mouse, a cow, a sheep, a goat, and a pig.

35. **(Currently amended)** A transgenic non-human animal selected from the group consisting of a mouse, a cow, a sheep, a goat, and a pig, having a transgene integrated into the genome of the non-human animal and also having a *tet* operator-linked gene in the genome of the non-human animal ~~organism~~, wherein:

the transgene comprises a transcriptional regulatory element functional in cells of the non-human animal operatively linked to a polynucleotide sequence encoding a fusion protein which activates transcription of said *tet* operator linked gene,

the fusion protein comprises a first polypeptide which Tet repressor operatively linked to a second polypeptide which directly or indirectly activates transcription in eukaryotic cells,

said *tet* operator-linked gene confers a detectable and functional phenotype on the organism when expressed in cells of the non-human animal,

said transgene is expressed in cells of the non-human animal at a level sufficient to produce amounts of said fusion protein that are sufficient to activate transcription of the *tet* operator-linked gene; and

in the absence of tetracycline or a tetracycline analogue in the non-human animal, said fusion protein binds to the *tet* operator-linked gene and activates transcription of the *tet* operator linked gene such that the *tet* operator-linked gene is expressed at a level sufficient to confer the detectable and functional phenotype on the non-human animal ~~organism~~, wherein the level of expression of the *tet* operator-linked gene can be downmodulated by administering tetracycline or a tetracycline analogue to the non-human animal.

36. **(Previously presented)** A transgenic non-human animal selected from the group consisting of a mouse, a cow, a sheep, a goat, and a pig having a transgene integrated into the genome of the non-human animal, wherein:

the transgene comprises a transcriptional regulatory element functional in cells of the non-human animal operatively linked to a polynucleotide sequence encoding a fusion protein which activates transcription of a *tet* operator linked gene,

the fusion protein comprising a first polypeptide which is a Tet repressor, operatively linked to a second polypeptide which directly or indirectly activates transcription in eukaryotic cells, and

said fusion protein is expressed in cells of the non-human animal.

37. **(Previously presented)** The non-human animal of claim 35, wherein the second polypeptide of the fusion protein comprises a transcription activation domain of herpes simplex virion protein 16.

38. **(Previously presented)** The non-human animal of claim 36, wherein the second polypeptide of the fusion protein comprises a transcription activation domain of herpes simplex virion protein 16.

39. **(Previously presented)** The non-human animal of claim 35, wherein the *tet* operator-linked gene is a second transgene comprising a gene of interest operably linked to at least one *tet* operator sequence.

40. **(Previously presented)** The non-human animal of claim 36, wherein the *tet* operator-linked gene is an endogenous gene that has been operatively linked to at least one *tet* operator sequence.